

REMARKS

The specification has been amended in order to correct an obvious typographical error contained therein. No new matter has been added.

In order to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention, the claims have been amended in order to state that they are directed to a MIG weld-solder filler composition utilized in soldering and welding processes. Support for this amendment is found on page 1 of the specification. Newly presented Claim 6 limits the content of manganese to 1 wt.%. No new matter has been added.

Newly presented Claims 7-9 are directed to a process of conducting MIG soldering or welding in which the improvement comprises utilizing the MIG weld-solder composition discussed above. No new matter has been added.

Claims 1-5 have been rejected under 35 USC 103 as being unpatentable over Gavrov et al. Claims 1-5 also have been rejected under 35 USC 103 as being unpatentable over JP 04221033 or Goto et al. Claims 1-5 also have been rejected under 35 USC 103(a) as being unpatentable over JP 04221033 or Goto et al and further in view of Gavrov et al. Applicants respectfully traverse these grounds of rejection and urge reconsideration in light of the following comments.

The Examiner states that the Information Disclosure Statement filed February 20, 2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance of each patent that is not listed in the English language. Applicants wish to point out that a European Search Report accompanied the references which described the category of the references and the claims to which the references are felt to be pertinent. A copy of the European Search Report is enclosed for the Examiner's convenience. This meets the requirements of 37 CFR 1.98(a)(3) and, therefore, Applicants respectfully request that the

Examiner initial all of the references listed on the PTO Form-1449.

The presently claimed invention is directed to a MIG weld-solder filler composition utilized in soldering and welding processes in which the improvement comprises the weld-solder filler composition contains, in % by weight, 0.5 to 7.0% aluminum, 0.5 to 2.0% manganese, 0.01 to 4% iron, 0.01 to 6% nickel, no more than 1.0% impurities and the remainder being copper. The presently claimed invention is also directed to a process of conducting MIG soldering or welding in which the improvement comprises utilizing the above-described MIG weld-solder filler composition.

The inventive MIG weld-solder filler composition has an unexpectedly low melting point. Due to this low melting point of the filler, only a slight amount of heat is needed to melt the filler and this results in a reduction in the amount of distortion in the welded pieces. In order to have the properties associated with the presently claimed filler composition, it is necessary that the claimed components be present in the required amounts and the impurity content level not be greater than 1.0 wt.%.

As is well known in the art, the presence of manganese in an alloy increases the strength of the alloy but reduces its ductility. A filler formed as a wire for use in a MIG welding machine has to exhibit specific properties. On the one hand, for manufacturing the wire-formed filler material, the alloy itself has to be easily drawable and formable in order to guide the wire through the tip of the MIG welding machine without the risk of blockage. On the other hand, the manganese content has to be high enough to guarantee sufficient weldability of the alloy, a special characteristic for which manganese is known. Based on these considerations, the present invention requires that the content of manganese be in the range of from 0.5 to 2.0% as an optimum range for use as an alloy element in a wire-formed filler for use in a MIG welding machine.

The Gavrov et al reference discloses a plurality of bundled individual filler wires which are connected with each other to form an electrode. The individual wires can be made of aluminum, nickel, manganese or iron and are alloyed during their application to a substrate.

The Gavrov et al reference requires that the core composition of the surface hard metal contain at least 2.1 wt.% of manganese. This is approximately 5% higher than the presently claimed upper limit of 2 wt.% manganese in Claim 1 and more than 50% higher than the required manganese content in Claims 3, 4, 6 and 9. Moreover, the currently presented claims expressly state that the presently claimed invention is a MIG weld-solder filler composition. The Gavrov et al reference clearly does not show that the composition disclosed there could be used as such. Therefore, Applicants respectfully submit that the presently claimed invention clearly is patentably distinguishable over this reference.

JP 04221033 discloses a special copper alloy used in the formation of springs and electrical components which contains one of the following components at the following wt.% or a silicon-manganese mixture at 0.02 to 10 wt.%: aluminum at 0.1 to 10 wt.%; nickel at 0.1 to 10 wt.%; boron at 0.001 to 1 wt.%; iron at 0.1 to 10 wt.%; zinc at 0.1 to 10 wt.%; silicon at 0.01 to 2 wt.%; and manganese at 0.01 to 10 wt.%.

At the outset, the presently claimed invention is readily distinguishable over the above-discussed Japanese reference in that the present invention is directed to a MIG weld-solder filler composition. As such, the Japanese reference contains no suggestion that a superior MIG weld-solder filler composition could be obtained by combining the claimed components together in the claimed content ratios. As such, it is respectfully submitted that the presently claimed invention is patentably distinguishable over this reference.

The Goto et al reference discloses a corrosion-resistant copper alloy having a composition consisting essentially of 5 to 9 wt.% aluminum, 0.5 to 4 wt.% nickel, 0.5 to 4 wt.% iron,

0.1 to 3 wt.% manganese, 0.001 to 1 wt.% titanium and at least one selected from 0.01 to 1 wt.% of cobalt and 0.001 to 0.1 wt.% of boron and the balance being copper and unavoidable impurities. This alloy is disclosed as being used in the production of marine propellers, tube sheets of heat exchangers in desalinization plants, various kinds of valves, automotive parts and oil-hydraulic parts. Like the previously discussed reference, there is no disclosure or suggestion in this reference that a MIG weld-solder filler composition could be obtained by combining the claimed components in the claimed compositional ranges or the criticality associated with the presently claimed ranges. Therefore, it is respectfully submitted that Goto et al, like the previously discussed references, does not disclose the presently claimed invention.

As discussed above, it is respectfully submitted that the references cited by the Examiner, either singularly or any groups of combinations, does not disclose the presently claimed invention in that none of the cited references suggest that a MIG weld-solder filler composition could be obtained by combining the claimed components in the claimed compositional ranges. Therefore, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over the references cited by the Examiner. The Examiner is respectfully requested to reconsider the present application and to pass it to issue.

Respectfully submitted,


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MITTEILUNG

Das Europäische Patentamt übermittelt beiliegend den europäischen Recherchenbericht zu der obengenannten europäischen Patentanmeldung.

Wenn zutreffend, Kopien der im Recherchenbericht aufgeführten Schriften sind beigelegt.

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Die folgenden Angaben des Anmelders wurden von der Recherchenabteilung genehmigt:

☒ Zusammenfassung

☒ Bezeichnung

☐ Die Zusammenfassung wurde von der Recherchenabteilung abgeändert und der endgültige Wortlaut ist dieser Mitteilung beigelegt.

Die folgende Abbildung wird mit der Zusammenfassung veröffentlicht:

KEINE



RÜCKERSTATTUNG DER RECHERCHENGEBÜHR

Falls Artikel 10 der Gebührenordnung in Anwendung kommt, ergeht noch eine gesonderte Mitteilung der Eingangsstelle hinsichtlich der Rückerstattung der Recherchegebühr.



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EUROPÄISCHER RECHERCHENBERICHT

Nummer der Anmeldung
EP 00 11 3760

| EINSCHLÄGIGE DOKUMENTE | | | |
|--|---|--|---|
| Kategorie | Kennzeichnung des Dokuments mit Angabe, soweit erforderlich, der maßgeblichen Teile | Betrifft Anspruch | KLASSIFIKATION DER ANMELDUNG (Int.Cl.7) |
| A | GB 2 037 320 A (BOC LTD) 9. Juli 1980 (1980-07-09) Zusammenfassung ---- | 1-7 | B23K9/23 B23K3/03 |
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| A,D | DE 199 53 670 A (EUROMAT GMBH) 23. Mai 2001 (2001-05-23) Zusammenfassung ----- | 1-7 | |
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| Recherchenort DEN HAAG | | Abschlußdatum der Recherche 2. Juli 2002 | Prüfer Herbreteau, D |
| KATEGORIE DER GENANNTEN DOKUMENTE | | | |
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**ANHANG ZUM EUROPÄISCHEN RECHERCHENBERICHT
ÜBER DIE EUROPÄISCHE PATENTANMELDUNG NR.**

EP 00 11 3760

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten europäischen Recherchenbericht angeführten Patentdokumente angegeben.
Die Angaben über die Familienmitglieder entsprechen dem Stand der Datei des Europäischen Patentamts am
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| Im Recherchenbericht angeführtes Patentdokument | | Datum der Veröffentlichung | Mitglied(er) der Patentfamilie | | Datum der Veröffentlichung |
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